PROGRESS REPORT 147
PENNSYLVANIA GEOLOGICAL SURVEY
FOURTH SERIES



BULLETIN OF THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
VOL. 39, NO. 6 (JUNE, 1955), PP. 811-821, 1 FIG.

# DEVELOPMENTS IN PENNSYLVANIA IN 1954[1]

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## ABSTRACT

No gas or oil discoveries of major significance were made in Pennsylvania during 1954. Tests on three additional prominent domes along anticlinal axes in north-central and western Pennsylvania were proved dry in the Oriskany. Major drilling activity was confined largely to the continued intensive development of the Benezette-Driftwood Oriskany-sand gas field in north-central Pennsylvania. The field now includes 24,000 acres and has 263 producing wells. The 1954 production amounted to 96.3 billion cubic feet of gas, and the total production at the end of 1954, to 141.7 billion cubic feet. The discovery well at the Driftwood end of the field was completed during the fall of 1951.

In all, 1,008 shallow-sand wells (Upper Devonian or higher) were completed, as compared with 1,706 in 1953. Of these, 204 were gas wells, 41 were oil wells, and 129 were dry holes. Five were drilled for gas storage and 629 were drilled in connection with secondary-recovery oil operations. In contrast, the number of deep wells completed (Middle Devonian or deeper) increased from 204 in 1953 to 233 in 1954. Of these, 134 were gas wells, 78 were dry holes, and 21 were drilled for gas storage. Oil production decreased from 10,627,000 barrels in 1953 to 9,123,000 barrels in 1954, while gas production increased from 98,300,000 MCF in 1953 to 158,050,000 MCF in 1954.

## INTRODUCTION

Major drilling activity in Pennsylvania during 1954 was confined largely to the continued intensive development of the Benezette-Driftwood Oriskany-sand gas field in north-central Pennsylvania. Drilling in the shallow-sand territory of western Pennsylvania (Upper Devonian or higher) declined markedly. In all, 1,008 shallow-sand wells were completed, as compared with 1,706 in 1953. Of these, 204 were gas wells, 41 were oil wells, and 129 were dry holes. Five were drilled for gas storage and 629 were drilled in connection with secondary-recovery oil operations. The decline was confined largely to the secondary-recovery oil wells, of which only 629 were drilled in 1954, as compared with 1,319 in 1953.

Two hundred and thirty-three deep wells (Middle Devonian or deeper) were completed in 1954, as compared with 204 in 1953. One hundred and thirty-four of these were gas wells, 78 were dry holes, and 21 were drilled for gas storage.

A classification of the wells, exclusive of those drilled for gas storage and secondary-recovery purposes, is given in Table I, oil and gas production is shown in Table II, discoveries are listed in Table III, and the more important dry exploratory tests in Table IV.

## SHALLOW-SAND DEVELOPMENTS

Shallow-sand well completions in western Pennsylvania, exclusive of those drilled in connection with underground gas storage and secondary-recovery oil

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In connection with the preparation of this review, the writers acknowledge the co-operation of G. G. Bauer and Paul W. Garrett, Jr.

Table I. Completion Summary, Pennsylvania, 1954

| | *Oil* | *Gas* | *Dry* | *Total* | *Per Cent Successful* |
|---|---|---|---|---|---|
| Exploratory tests | 0 | 4 | 33 | 37 | 11 |
| Development wells* | 41 | 334 | 174 | 549 | 68 |
| | 41 | 338 | 207 | 586 | 65 |

* Does not include wells drilled in connection with underground gas storage or secondary-recovery oil operations.

Table II. Production in Pennsylvania, 1954

| | *1953* | *1954* | *Cumulative Total to 12-31-54* |
|---|---|---|---|
| Oil (bbls.) | 10,627,000 | 9,123,000 | 1,177,652,000 |
| Gas (MCF) | 98,300,000 | 158,050,000 | 6,717,889,000 |

operations, are shown in Table V. During 1954, 374 such wells were drilled, of which 55 per cent were gas wells, 11 per cent were oil wells, and 34 per cent were dry holes. The 204 new gas wells had a total initial open-flow capacity of 15,504,000 cubic feet per day, as compared with the total initial open-flow capacity of 37,222,000 cubic feet of the 220 gas wells completed in 1953. The 41 new oil wells had a total initial production of 106 barrels per day, as compared with the total initial production of 152 barrels of the 40 oil wells completed in 1953. The results obtained in 1954 by deepening 18 shallow-sand wells are shown in Table VI.

One new shallow-sand gas pool of minor importance was discovered in Delaware Township, Mercer County, in 1954. The greatest activity in the shallow-sand gas belt of western Pennsylvania occurred in Jefferson County where 51 gas wells were completed. Their average initial open-flow capacity, however, was only 73,000 cubic feet per day per well. Three wells were drilled for underground gas storage in Greene County, and two in Washington County during 1954.

The average daily oil production of Pennsylvania in 1954 was 24,995 barrels, as compared with 29,115 barrels in 1953, a decline of 14 per cent. The drastic decline in production was due, in large part, to a change in the price structure. At the beginning of 1954, the price received in the Bradford district was cut to $3.75 per barrel, in the middle district to $3.70, and in the southwest district to $3.31. On May 20, the prices were further reduced to $3.26, $3.20, and $2.81, respectively. On December 1, they were raised to $3.35, $3.25, and $2.93, respectively. The lower prices resulted from a loss of foreign markets and a decline in demand for the heavier lubricating oil fractions obtained from Pennsylvania Grade crude at home due to new technological developments. Prior to World War II, about one-fifth of the total production of Pennsylvania lubricants was exported. The building-up of a lubricating oil refining capacity abroad and the

## Table III. Important Discoveries in Pennsylvania, 1954

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Map Index No.* | *Operator* | *Well Name* | *Well Location* | *Basis for Location* | *Completion Date* | *Total Depth of Well (Feet)* | *Producing Depth (Feet)* | *Initial Production MCF/D Gas* | *Producing Formation* | *Deepest Formation Tested* | *Name of Field or Pool* | *Exploratory Classification* | *Remarks* |
| 12 | Downs Oil and Gas Company | Downs 1 | Leidy Twp., Clinton County | Unknown | 5-18-54 | 6,155 | 6,153 | 6,048 | Oriskany (Lower Devonian) | Oriskany | Southwest Leidy | New pool | Located in fault block on southeast side of graben which bounds main Leidy pool on southeast side. Discovery well of small Oriskany sand pool at southwest end of Leidy field |
| 19 | Chas. E. Fralich and Associates | Chas. G. Lisowitz 1 | Pine Twp., Indiana County | Sur. geol. | 10- 1-54 | 8,172 | 8,075 | 1,019 | Onondaga-Oriskany zone | Oriskany | Nolo | New field | Located on southwest nose of Pineton dome along Nolo anticline. Production probably from fractured Onondaga chert and Oriskany sandstone |

## Table IV. Important Dry Exploratory Tests in Pennsylvania, 1954

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| *Map Index No.* | *Operator* | *Well Name* | *Well Location* | *Exploratory Classification* | *Basis for Location* | *Completion Date* | *Total Depth (Feet)* | *Deepest Formation* | *Remarks* |
| 1 | Benedum Trees Oil Co. | Rock Hill Coal Co. 1 | Broad Top Twp., Bedford County | New field | Sur. geol. | 10-28-54 | 11,743 | Hamilton shale (Middle Devonian) | Located on minor anticlinal fold in Broad Top Mountain Coal basin of south-central Pennsylvania. Did not reach Oriskany. Indicated marked continued thickening of Upper Devonian shales and sandstones southeast of Allegheny Front |
| 2 | John Galey *et al.* | Miller 1 | Monroe Twp., Bedford County | New field | Sur. geol. | 12- 3-54 | 5,300 | Oriskany (Lower Devonian) | Small showing of gas in Oriskany. Located on minor anticlinal fold in closely folded Appalachian Mountain belt in south-central Pennsylvania |
| 18 | Chestnut Ridge Oil and Gas Co. | H. B. Strong 1 | Cherryhill Twp., Indiana County | New field | Sur. geol. | 7-24-54 | 8,005 | Oriskany | First Oriskany test on Strongs Hill dome along Chestnut Ridge anticline. Dry |
| 22 | Delta Drilling Co. | Ambrose E. Ging 1 | Cascade Twp., Lycoming County | New field | Sur. geol. and seismic | 2-24-54 | 8,118 | Salina (Upper Silurian) | First Oriskany test along Rose Valley anticline. Dry |
| 24 | Angas Corp. | Fox 1 | Shamokin Twp., Northumberland County | New field | Sur. geol. | 5-18-54 | 1,820 | Keyser (Upper Silurian) | Oriskany test along Shade Mountain anticline of closely folded Appalachian Mountains west of anthracite coal fields. No sandstone at Oriskany horizon |
| 29 | Mid-East Oil and Gas Co. | Frank Litvik 1 | Derry Twp., Westmoreland County | New field | Sur. geol. | 7-20-54 | 7,977 | Oriskany | First Oriskany test on Litvik dome along axis of Fayette anticline. Dry in Oriskany. A little gas encountered in Upper Devonian sandstone |

TABLE V. SHALLOW-SAND WELL COMPLETIONS IN PENNSYLVANIA IN 1954*

| County | Total | | Gas | | | Oil | | | Dry | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Wells | Average Total Depth (Feet) | Number of Wells | Average Initial Open-Flow (M. Cu. Ft. per Day) | Average Total Depth (Feet) | Number of Wells | Average Initial Production (Barrels per Day) | Average Total Depth (Feet) | Number of Wells | Average Total Depth (Feet) |
| Allegheny | 39 | 2,722 | 21 | 54 | 2,819 | 7 | 2.4 | 2,681 | 11 | 2,563 |
| Armstrong | 40 | 2,973 | 38 | 88 | 3,038 | 0 | — | — | 2 | 1,729 |
| Beaver | 7 | 1,242 | 0 | — | — | 2 | 5.0 | 1,225 | 5 | 1,257 |
| Butler | 29 | 1,951 | 5 | 27 | 1,935 | 18 | 1.5 | 1,938 | 6 | 2,003 |
| Cameron | 2 | 2,269 | 0 | — | — | 0 | — | — | 2 | 2,269 |
| Centre | 2 | 1,548 | 0 | — | — | 0 | — | — | 2 | 1,548 |
| Clarion | 28 | 2,645 | 19 | 61 | 2,794 | 0 | — | — | 9 | 2,330 |
| Clearfield | 3 | 3,297 | 2 | 7 | 3,881 | 0 | — | — | 1 | 2,130 |
| Clinton | 1 | 3,000 | 0 | — | — | 0 | — | — | 1 | 3,000 |
| Crawford | 2 | 948 | 0 | — | — | 0 | — | — | 2 | 948 |
| Elk | 21 | 2,234 | 3 | 23 | 2,409 | 1 | 1.0 | 2,589 | 17 | 2,183 |
| Fayette | 7 | 2,677 | 5 | 206 | 2,633 | 0 | — | — | 2 | 2,788 |
| Forest | 9 | 1,290 | 4 | 44 | 990 | 0 | — | — | 5 | 1,531 |
| Greene | 5 | 833 | 1 | 75 | 1,120 | 2 | 1.5 | 744 | 2 | 778 |
| Indiana | 24 | 2,808 | 11 | 109 | 3,033 | 1 | 0.5 | 3,257 | 12 | 2,565 |
| Jefferson | 66 | 2,895 | 51 | 73 | 2,877 | 1 | 1.0 | 1,988 | 14 | 3,027 |
| Lycoming | 1 | 5,702 | 0 | — | — | 0 | — | — | 1 | 5,702 |
| McKean | 20 | 2,171 | 11 | 31 | 2,051 | 0 | — | — | 9 | 2,317 |
| Mercer | 6 | 720 | 6 | 187 | 720 | 0 | — | — | 0 | — |
| Potter | 6 | 3,417 | 2 | 25 | 2,600 | 0 | — | — | 4 | 2,325 |
| Venango | 1 | 810 | 0 | — | — | 0 | — | — | 1 | 810 |
| Warren | 3 | 1,386 | 0 | — | — | 3 | 1.0 | 1,386 | 0 | — |
| Washington | 30 | 2,408 | 9 | 96 | 2,274 | 6 | 7.8 | 2,367 | 15 | 2,505 |
| Westmoreland | 22 | 3,335 | 16 | 71 | 3,286 | 0 | — | — | 6 | 3,469 |
| Total | 374 | 2,527 | 204 | 76 | 2,725 | 41 | 2.6 | 2,043 | 129 | 2,369 |

* Does not include wells drilled in connection with underground gas storage or secondary-recovery oil operations.

shortage of dollar exchange and resulting currency restrictions have eliminated a considerable part of this market. At home, the dieselization of locomotives has practically closed the largest outlet for cylinder oils and new automobile developments have been throwing more emphasis on the lighter fractions.

In the Bradford oil field, which includes the Bradford, Guffey, and Burning Well pools, 545 new wells were drilled in connection with secondary-recovery operations, as compared with 1,290 in 1953, a decrease of 58 per cent. Oil production in this field, 86 per cent of whose area is in Pennsylvania, decreased from a daily average of 25,243 barrels in 1953 to 21,217 barrels in 1954, or 16 per cent.

TABLE VI. SHALLOW-SAND WELLS DEEPENED IN 1954

| County | Total | | Gas | | | Dry | |
|---|---|---|---|---|---|---|---|
| | Number of Wells | Average Amount Deepened (Feet) | Number of Wells | Average Initial Open-Flow (M. Cu. Ft. per Day) | Average Amount Deepened (Feet) | Number of Wells | Average Amount Deepened (Feet) |
| Armstrong | 9 | 1,235 | 8 | 127 | 1,365 | 1 | 201 |
| Butler | 2 | 703 | 1 | 126 | 234 | 1 | 1,171 |
| Clarion | 2 | 72 | 2 | 50 | 72 | 0 | — |
| Elk | 1 | 92 | 0 | — | — | 1 | 92 |
| Greene | 2 | 1,353 | 1 | 157 | 836 | 1 | 1,870 |
| Jefferson | 2 | 1,354 | 2 | 106 | 1,354 | 0 | — |
| McKean | 1 | 492 | 1 | 10 | 492 | 0 | — |
| Total | 19 | 982 | 15 | 108 | 1,022 | 4 | 834 |

Of the new wells, 504 were located in the Pennsylvania part of the field, and this part contributed 19,228 barrels of the daily average production. This represented 77 per cent of the total production of the state in 1954.

In the Shingle House oil pool of northern Potter County 8 oil wells and 11 water-intake wells were completed in 1954. Fifty-six wells were completed in the Kane-Clarendon area of southwestern McKean County and eastern Warren County, mostly in connection with water-flooding projects in the Clarendon pool of east-central Warren County. In the Venango district of northern Venango and adjacent parts of Crawford and Forest counties, 33 wells were drilled in 1954, as compared with 55 in 1953, in connection with secondary-recovery oil operations. Of these, 8 were air- or gas-intake wells, 3 were water-intake wells, and 22 were oil wells. Three gas-input, 7 water-input, and 7 oil wells were drilled in Butler County.

Oil production in the middle and southwestern districts of Pennsylvania decreased from a daily average of 6,519 barrels in 1953 to 5,767 barrels in 1954, or 11.5 per cent. No new oil fields or pools were discovered in Pennsylvania in 1954.

### DEEP-SAND DEVELOPMENT

Summarized records of the exploratory deep wells completed in north-central and western Pennsylvania are assembled in Table VII. The locations of the wells are shown on the map in Figure 1. Of the 223 wells drilled to the Oriskany or deeper in 1954, 134 were gas wells, 21 were drilled for gas storage, and 68 were dry holes. Another 10 were abandoned after drilling through the Tully limestone at the top of the Middle Devonian series when it was discovered that they were off structure, or near-by wells indicated that reservoir conditions in the Oriskany formation were not favorable for the occurrence of gas.

In the Oriskany sand gas territory of north-central Pennsylvania, the year 1954 was marked by the continued intensive development of the Benezette-Driftwood gas field in southeastern Elk County. The field now includes about 24,000 acres, and there is a possibility of some further extension on the southwest side. One hundred twenty-three producing wells with average initial open-flow capacities of 5,000,000 cubic feet of gas per day and 39 dry holes were completed in it during 1954. The initial open flows of the individual wells ranged from 100,000 to 42,000,000 cubic feet per day. The 1954 production of the field amounted to 96.3 billion cubic feet and the total production at the end of 1954 to 141.7 billion cubic feet.

The Leidy field was extended slightly at the southwest end by the discovery of a small Oriskany sand pool in a fault block on the southeast side of the graben which bounds the main pool on the southeast side. Three producing wells have been completed in it thus far and these have produced about 873,500,000 cubic feet of gas. The production of the main Leidy pool amounted to only 1.5 billion cubic feet in 1954.

TABLE VII. EXPLORATORY DEEP WELLS COMPLETED IN PENNSYLVANIA IN 1954

SHEET 1 — ELEVATIONS AND DEPTHS ARE IN FEET

| COUNTY | Bedford | Bedford | Bradford | Cameron | Cameron | Cameron | Centre | Centre | Clearfield | Clearfield |
|---|---|---|---|---|---|---|---|---|---|---|
| MAP NUMBER | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| NAME OF WELL | Rock Hill Coal Co., No 1 | Miller 1. | Harold French 1 | State of Penna Tract 24, No.1 | Frank D Floyd 1 | Hoover 1 | O. P. McCord 1 | Erhard 1 | State of Penna Tract C, No.3 | J. R. Hicks 1 |
| OPERATOR | Benedum Trees Oil Co., | John Galey et al | Lea Leiderbach et al | Parsons Brothers | Moffat et al | Ralph Peters | R. W. Dye et al | Bald Eagle Drilling Co | Manufacturers Light & Heat Co | Mc Nanny and Shearer |
| TOWNSHIP | Broad Top | Monroe | Granville | Gibson | Grove | Gibson | Rush | Taylor | Pine | Goshen |
| QUADRANGLE | Broad Top 1 | Clearville 1 | Powell 1 | Driftwood 104 | Driftwood 105 | Karthaus 6 | Phillipsburg 1 | Phillipsburg 2 | Penfield 5 | Clearfield 22 |
| LATITUDE | .07 mi. S 40°10' | .90 mi. N. 39°50' | 2.80 mi. N. 41°40' | 1.68 mi. N. 41°15' | 2.45 mi. S. 41°20' | 1.49 mi. S 41°15' | .63 mi. N. 40°55' | 1.81 mi N. 40°45' | .40 mi. S. 41°05' | 1.46 mi. N. 41°10' |
| LONGITUDE | 1.05 mi. E. 78°10' | .83 mi. W. 78°20' | .99 mi. W. 76°40' | 1.48 mi E 78°15' | 1.20 mi. E. 78°05' | 1.20 mi W. 78°10' | 1.14 mi W 78°05' | .72 mi W 78°10' | .04 mi W. 78°30' | 1.75 mi. W. 78°20' |
| DATE COMPLETED | 10-28-54 | 12-3-54 | 4-10-54 | 6-24-54 | 3-26-54 | 1-23-54 | 12-10-54 | 6-11-54 | 8-18-54 | 6-1-54 |
| ELEVATION | 1933 | 1000 | 1430 | 2042 | 909 | 2044 | 1907 | 1529 | 1815 | 2072 |
| TULLY | Tully zone 11,070-11,130 | | 2796- | 6508- | 5594- | 6625- | 7380- | 5824-5834 | 5970- | 6525- |
| ONONDAGA | | Tioga Bentonite at 4685 | 4370-4537 | 7291- | 6392- | 7385- | 8442- | 6818- | 6713- | 7260- |
| ORISKANY | | 4880-5258 20 Mcf gas 5005-18 5114, 5121 | 4537-4630 Show of gas | 7328-7347 | 6426-6452 | 7415- Show of gas Salt water | 8495-8508 | 6875- Show gas at 6876 | 6769-6780 | 7315 |
| SALINA | | | | | | | | | | |
| LOCKPORT | | | | | | | | | | |
| ALBION — REO MEDINA (GRIMSBY) | | | | | | | | | | |
| ALBION — WHITE MEDINA (WHIRLPOOL) | | | | | | | | | | |
| QUEENSTON | | | | | | | | | | |
| TOTAL DEPTH | 11,743 | 5300 | 4673 | 7411 | 6505 | 7440 | 8516 | 6975 | 6783 | 7372 |
| DEEPEST FORMATION TESTED | Tully | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany |
| RESULT | Shot 6040-6100 Shot twice No results Dry | Small show gas in Oriskany | Show of gas in Oriskany Abandoned | Dry | Dry | Show of gas and very little salt water over night | Dry | Show of gas and salt water in Oriskany Abandoned | Dry | Dry |

SHEET 2

| COUNTY | Clearfield | Clinton | Erie | Fayette | Fayette | Indiana | Indiana | Indiana | Indiana | Lycoming |
|---|---|---|---|---|---|---|---|---|---|---|
| MAP NUMBER | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| NAME OF WELL | Orchard Hunting Club, No. 1 | Downs 1 | Boyd Spencer 1 | F.K. Butlermore Heirs, No. 1 | Adolph Dupree 1 | Farmers & Miners Trust Co, No 1 | Herberl Gernandt 1 | H. B. Strong 1 | Chas. G Lisowitz 1 | Steven Duffy 1 |
| OPERATOR | Godfrey L. Cabot, Inc | Downs Oil and Gas Co. | Amity Oil and Gas Co. | The Peoples Nat. Gas Co. | Mid-Atlantic Oil & Gas Co | Columbian Carbon Co | Fairman Drilling Co | Chestnut Ridge Oil & Gas Co | Chas E. Frolich & Associates | Fryer, Hanson and Spencer |
| TOWNSHIP | Goshen | Leidy | Wayne | Connellsville | Saltlick | Banks | Grant | Cherryhill | Pine | Pine |
| QUADRANGLE | Clearfield 21 | Renovo West 189 | Corry 17 | Connellsville 3 | Donegal 6 | Punxsutawney 4 | Punxsutawney 5 | Indiana 1 | Barnesboro 2 | Antrim 9 |
| LATITUDE | 2.60 mi. N 41°10' | 2.19 mi. N 41°20' | .32 mi. S. 42°00' | 1.25 mi. N. 40°00' | 2.70 mi. N 40°00' | 1.75 mi. S 40°55' | 1.70 mi. S. 40°50' | 1.40 mi. N. 40°35' | .25 mi. N 40°35' | 1.69 mi. N. 41°30' |
| LONGITUDE | .72 mi. W 78°20' | .96 mi. W 77°55' | 1.77 mi. E 79°45' | 1.45 mi. W 79°30' | 2.73 mi. W 79°15' | .30 mi. W. 78°50' | 1.50 mi E. 79°00' | 1.48 mi. E 79°05' | 2.08 mi E. 79°00 | .10 mi W. 77°20' |
| DATE COMPLETED | 11-27-54 | 5-18-54 | 11-24-54 | 10-25-54 | 10-22-54 | 12-1-54 | 12-3-54 | 7-24-54 | 10-1-54 | 5-8-54 |
| ELEVATION | 2081 | 854 | 1682 | 2272 | 2648 | 1948 | 1777 | 1752 | 1825 | 1742 |
| TULLY | 6501 - 6620 | 5279 - | 2805- | 8027- | | 6770 - | 6901 - 6911 | 7065- | 7370 -7430 | 5342 - |
| ONONDAGA | 7332 - 7398 | 6123 - | 3045 - | 8870 - Chert 8889 - | 8180 - Chert 8191 - | 7475 - Chert 7485 - Hfcd. 7498-7600 | 7565 - | 7765- | Tioga Bentonite 8040 - 8043 Chert 8015 -, Gas | 6438 - |
| ORISKANY | 7398 - 7404 Shot, 7398- 7404 | 6150 - Gas at 6153 | | 9063 - | 8355 - | 7566 - 7570 | 7664 - Show of gas Shot 7588-7602 | 7923 -7955 | 8157 - 8168 | 6491, - 6527 Show of gas |
| SALINA | | | Shale and salt 3622 - 3845 | | | | | | | |
| LOCKPORT | | | 10 Mcf gas and salt water 4073-4097 | | | | | | | |
| ALBION — RED MEDINA (GRIMSBY) | | | 4290-4366 | | | | | | | |
| ALBION — WHITE MEDINA (WHIRLPOOL) | | | 4436 - 4450 | | | | | | | |
| QUEENSTON | | | 4450- | | | | | | | |
| TOTAL DEPTH | 7414 | 6155 | 4457 | 9261 | 8476 | 7600 | 7689 | 8005 | 8172 | 6567 |
| DEEPEST FORMATION TESTED | Oriskany | Oriskany | Albion | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany | Oriskany |
| RESULT | Dry | 10F. 6,048 Mcf gas from Oriskany R.P 1,700 psi in 19 hrs. | Dry | Dry | Dry | No gas before 431 Mcf gas after hydrafracing R.P. 3,820 psi in 42 hrs. | 3 Mcf gas from Oriskany after shot | Dry | 1,019 Mcf gas Onondaga-Oriskany zone after acidizing R.P. 3250 psi in 14 hrs. | Dry |

SHEET 3

| COUNTY | Lycaming | Lycaming | Mercer | Northumberland | Potter | Potter | Union | Washington | Westmoreland | Westmoreland |
|---|---|---|---|---|---|---|---|---|---|---|
| MAP NUMBER | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| NAME OF WELL | Wallace Codney 1 | Ambrose E. Ging 1 | Russo 1 | Fox 1 | S.L. Cory 1 | W.C. Simmons 1 | J. Iddings 1 | Harry Sutherland & Lawrence Kelly 1 | Frank Litvik 1 | J.A. Mills 1 |
| OPERATOR | Godfrey L. Cabot, Inc. | Delta Drilling Co | Blood | Angas Corp. | Keta Gas and Oil Co. | Keta Gas and Oil Co. | Penn Union Prospecting Co. | Washington Oil Co | Mid-East Oil & Gas Co | The Peoples Nat. Gas Co. |
| TOWNSHIP | Cogan House | Cascade | West Salem | Shamokin | Harrison | Hector | W. Buffalo | Buffalo | Derry | Unity |
| QUADRANGLE | Trout Run 2 | Warrensville 1 | Kinsman 2 | Shamokin 1 | Gaines 67 | Gaines 68 | Mifflinburg 1 | Claysville 1 | Latrobe 6 | Latrobe 7 |
| LATITUDE | 1.85 mi. N 41°25' | .87 mi. N 41°25' | 2.77 mi. S. 41°25' | 2.16 mi N 40°50' | 1.65 mi. N 41°55' | 1.52 mi. S. 41°55' | 2.77 mi. N 40°55' | 1.50 mi. S. 40°10' | .45 mi. S 40°25' | .15 mi. N 40°20' |
| LONGITUDE | .50 mi. E. 77°10' | 1.42 mi. E. 76°55' | .19 mi. W 80°30' | .62 mi W 76°40' | .10 mi. E. 77°40' | 1.87 mi E. 77°45' | .15 mi. E. 77°05' | .30 mi W. 78°20' | .35 mi. E. 79°20' | .03 mi. E. 79°25' |
| DATE COMPLETED | 9-2-54 | 2-24-54 | 1-22-54 | 5-18-54 | 8-20-54 | 5-8-54 | 1-15-54 | 6-11-54 | 7-20-54 | 11-17-54 |
| ELEVATION | 1660 | 1272 | 1035 | 780 | 1695 | 2257 | 700 | 1103 | 1292 | 1168 |
| TULLY | 6305- | 5065-5225 | | | 4340- | 5170- | | 6567- | 7180- | 7060-7470- |
| ONONDAGA | 7541- | 6542- | 2970- | 1060-1235 | 5049- | 5850- | | 6824- Chert 6829- | 7755- Chert 7765- | 8002- Chert 8038- |
| ORISKANY | 7607-7664 Show of gas | 6640- | 3190-3202 Show of gas | Horizon 1235- | 5076-5098 | Horizon 5862- | | 7093- S.W. at 7130 | 7893-7923 4 Mcf gas at 7896 | 8169-8234 |
| SALINA | | | | | | | Top of well | | | |
| LOCKPORT | | | | | | | | | | |
| ALBION — RED MEDINA (GRIMSBY) | | | | | | | | | | |
| ALBION — WHITE MEDINA (WHIRLPOOL) | | | | | | | | | | |
| QUEENSTON | | | | | | | | | | |
| TOTAL DEPTH | 7814 | 8118 | 3228 | 1820 | 5099 | 5889 | 2470 | 7184 | 7977 | 8256 |
| DEEPEST FORMATION TESTED | Oriskany | Oriskany | Oriskany | Keyser | Oriskany | Oriskany | ? | Oriskany | Oriskany | Oriskany |
| RESULT | Show of gas in Oriskany Abandoned | Dry | Show of gas and salt water Shot Abandoned | Dry | Dry | Oriskany absent Abandoned | Abandoned | Salt water in Oriskany Abandoned | Plugged back to 4400 ft. 1185 Mcf gas from Bradford after shot, 3482-95 Abd. in Oriskany | Dry |

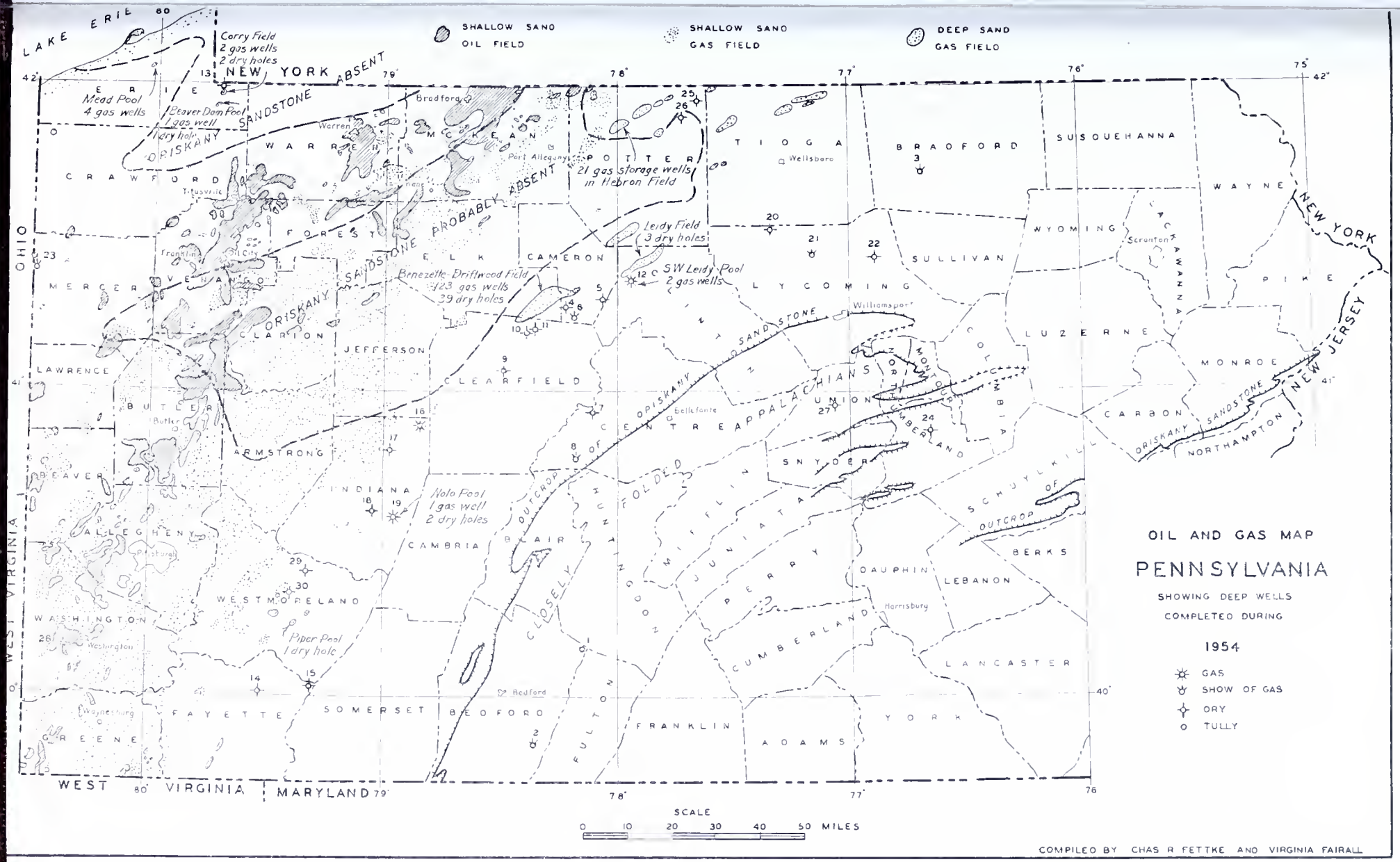
SHALLOW SAND OIL FIELD
SHALLOW SAND GAS FIELD
DEEP SAND GAS FIELD
LAKE ERIE
Corry Field 2 gas wells 2 dry holes
NEW YORK ABSENT
Mead Pool 4 gas wells
Beaver Dam Pool 1 gas well 1 dry hole
ORISKANY SANDSTONE ABSENT
21 gas storage wells in Hebron Field
Leidy Field 3 dry holes
SW Leidy Pool 2 gas wells
ORISKANY SANDSTONE PROBABLY ABSENT
Benezette-Driftwood Field 123 gas wells 39 dry holes
ORISKANY SANDSTONE
Nolo Pool 1 gas well 2 dry holes
Piper Pool 1 dry hole
CLOSELY FOLDED
OUTCROP OF CENTRAL APPALACHIANS
OUTCROP OF SCHUYLKILL
OUTCROP OF SNYDER
ERIE
CRAWFORD
MERCER
VENANGO
WARREN
MCKEAN
POTTER
TIOGA
BRADFORD
SUSQUEHANNA
WAYNE
PIKE
WYOMING
LUZERNE
LACKAWANNA
MONROE
CARBON
NORTHAMPTON
SULLIVAN
LYCOMING
CAMERON
ELK
FOREST
CLARION
JEFFERSON
CLEARFIELD
LAWRENCE
BUTLER
ARMSTRONG
INDIANA
BEAVER
ALLEGHENY
WASHINGTON
GREENE
FAYETTE
WESTMORELAND
SOMERSET
CAMBRIA
BLAIR
BEDFORD
FULTON
JUNIATA
PERRY
SNYDER
UNION
MIFFLIN
CUMBERLAND
DAUPHIN
LEBANON
BERKS
LANCASTER
YORK
FRANKLIN
ADAMS
Erie
Meadville
Titusville
Oil City
Franklin
Butler
Pittsburgh
Washington
Waynesburg
Bradford
Warren
Port Allegany
Wellsboro
Williamsport
Scranton
Bellefonte
Harrisburg
Bedford
OHIO
WEST VIRGINIA
NEW YORK
NEW JERSEY
OIL AND GAS MAP
PENNSYLVANIA
SHOWING DEEP WELLS COMPLETED DURING
1954
GAS
SHOW OF GAS
ORY
TULLY
SCALE
0 10 20 30 40 50 MILES
COMPILED BY CHAS R FETTKE AND VIRGINIA FAIRALL

FIG. 1

The Chas. G. Lisowitz well No. 1 (No. 19, Fig. 1) developed an open flow of one million cubic feet of gas per day after acidizing in the Onondaga chert-Oriskany sandstone zone. The initial reservoir pressure was 4,325 pounds per square inch. Porosity is probably of the fracture type. The well is located on the southwest nose of the Pineton dome along the Nolo anticline. Two offset wells, one updip on the east side and one downdip on the west side, were dry. The Farmers and Miners Trust Company No. 1 (No. 16, Fig. 1) developed an open flow of 435,000 cubic feet from the same zone after hydraulic fracturing. No gas was detected when the zone was drilled originally. The well is located on the southwest plunging nose of a dome along the Chestnut Ridge anticline, 7 miles southwest of the Alice Irwin well No. 13, completed in 1953, which developed an open flow of 700,000 cubic feet of gas per day after being shot in the Onondaga chert-Oriskany sandstone zone. Only a very slight showing of gas was noticed before the well was shot. The production has held up well during the past year. The three cases cited are believed to be examples of the occurrence of gas in fracture-type porosity similar to that encountered in the Onondaga chert and in some places in the underlying strata in the Summit field of Fayette County in southwestern Pennsylvania.

Four additional producing wells completed in 1954 at the south end of the Meade pool, a small Oriskany sand gas pool in north-central Erie County, extended the boundaries of that pool slightly. Two small gas wells and two dry holes were drilled in the Corry pool and one small gas well and one dry hole in the Beaver Dam pool, both small Medina (Lower Silurian) sand gas pools in southeastern Erie County.

The H. B. Strong well No. 1 (No. 18, Fig. 1) on the Strongs Hill dome along the Chestnut Ridge anticline in Indiana County, the Ambrose E. Ging No. 1 (No. 22, Fig. 1) on the Rose Valley dome in Lycoming County, and the Frank Litvik No. 1 (No. 29, Fig. 1) on the Litvik dome along the Fayette anticline in Westmoreland County represent unsuccessful first tests of the Oriskany formation under the three prominent structures listed. The Oriskany sandstone at the three localities was found to be tight and calcareous.

The Miller well No. 1 (No. 2, Fig. 1), located on a minor anticlinal fold in the closely folded Appalachian Mountain belt in Bedford County, south-central Pennsylvania, encountered very small showings of gas at several intervals in a thick section of Oriskany sandstone. The Fox No. 1 (No. 24, Fig. 1), along the axis of the Shade Mountain anticline, west of the anthracite coal fields, in Northumberland County, found no sandstone at the Oriskany horizon.

The Steven Duffy well No. 1 (No. 20, Fig. 1), located on the Oregon Hill dome along the Slate Run anticline in northern Lycoming County, and the Wallace Codney No. 1 (No. 21, Fig. 1) on the Cogan House dome in Lycoming County represent unsuccessful second Oriskany tests of the respective structures on which they are located.

The F. K. Buttermore Heirs well No. 1 (No. 14, Fig. 1) on the Pleasant Hill

dome along the Chestnut Ridge anticline in northern Fayette County; the Adolph Dupree No. 1 (No. 15, Fig. 1) on a prominent dome along the Laurel Hill anticline in northeastern Fayette County; and the J. A. Mills No. 1 (No. 30, Fig. 1) on the Dry Ridge dome along the Fayette anticline in Westmoreland County, each passed through a fault before reaching the Oriskany sandstone. All three were dry in the Oriskany sandstone.

The original objective of the Rock Hill Coal Company well No. 1 (No. 1, Fig. 1) was to test the Upper Devonian sandstones under the Broad Top Mountain Coal basin of south-central Pennsylvania. Only slight showings of gas were encountered in these sandstones. The well was finally stopped in Hamilton (Middle Devonian) shale. It did not reach the Oriskany sandstone. The section penetrated indicates a marked continued thickening of the Upper Devonian shales and sandstones eastward from the Allegheny Front.

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